STAFF REPORT
for
ORDER NO. R5-2009-____

RECISSION OF CEASE AND DESIST ORDER NO. 97-105

CITY OF BAKERSFIELD
WASTEWATER TREATMENT PLANT NO. 2
KERN COUNTY

This Staff Report discusses performance of the expanded wastewater treatment facility and the rescission of a Cease and Desist Order (CDO) for the City of Bakersfield Wastewater Treatment Plant No. 2 (WWTP No. 2). Staff received comments from the Discharger regarding the Orders.

BACKGROUND

The City of Bakersfield (Discharger) owns and operates Wastewater Treatment Plant No. 2 (WWTP No. 2), an existing wastewater treatment facility (WWTF) that serves the incorporated and unincorporated areas of central, east, northeast, and southeast Bakersfield that are generally east of Highway 99. WWTP No. 2 is currently regulated by Waste Discharge Requirements Order No. 97-104 (WDRs) and CDO No. 97-105.

WWTP No. 2 opened in 1958 and was upgraded to a secondary treatment plant in 1978 with a design capacity of 19 mgd. The 1978 plant consisted of headworks, two primary clarifiers, four aerated lagoons, two sludge digesters, eighteen sludge drying beds, and eight storage ponds. In May 1996, the Discharger submitted a RWD along with a technical report dated August 1996 in support of an increase in the monthly average dry weather discharge up to 25 mgd. In response, the Central Valley Water Board adopted the existing WDRs Order No. 97-104 in June 1997. Because the Discharger was exceeding secondary treatment effluent limits for 5-day biochemical oxygen demand (BOD), the Central Valley Water Board adopted CDO No. 97-105. The CDO was issued with a time schedule for the Discharger to expand the WWTF and become compliant with effluent limits in the WDRs.

EXPANDED WWTP

In September 2000, the Discharger completed an expansion of the WWTF to increase the daily flow capacity of the plant to 25 mgd. The expansion included adding one additional primary clarifier, three trickling filters, three secondary clarifiers, two additional sludge digesters with methane recovery and a cogeneration system, and an upgrade of the effluent pumping system. In 2004, an effluent storage expansion project was completed that converted the four aerated lagoons to one storage pond and expanded the storage capacity of another existing storage pond. The storage ponds have a compacted soil base that minimizes the percolation of the treated wastewater to the underlying groundwater.

Self-monitoring data from January 2007 to September 2009 characterize the quality of the influent and effluent as follows:

Constituent/Parameter	Units[1]	Influent	Effluent	% Removal[2]
Conventional Pollutants				
BOD[4]	mg/L	449	33	93
TSS[5]	mg/L	509	25	95
Salts				
Chloride	mg/L	NS[3]	82	--
Sodium	mg/L	NS[3]	83	--
EC[6]	µmhos/cm	NS[3]	750	--
TDS[7]	mg/L	NS[3]	419	--
Nitrogen		NS[3]		
Nitrate as Nitrogen	mg/L	NS[3]	6.0[8]	--
Metals		NS[3]		
Arsenic	µg/L	NS[3]	2.0	--
Lead	µg/L	NS[3]	1.55	--
Copper	µg/L	NS[3]	19	--

[1] mg/L = milligrams per liter; µmhos/cm = micromhos per centimeter; µg/L = micrograms per liter
[2] Percent removal, -- = No data available
[3] Not sampled (NS)
[4] 5-day biochemical oxygen demand (BOD)
[5] Total suspended solids (TSS)
[6] Electrical conductivity at 25ºC (EC)
[7] Total dissolved solids (TDS)
[8] Data reported as Nitrate. Converted to nitrate as nitrogen by dividing by a factor of 4.5.
[9] Calculated by adding nitrate as nitrogen and total Kjeldahl nitrogen (TKN)

As shown in the preceding table, the expanded plant has been effective in reducing the BOD concentration of the influent, removing over 90 percent prior to discharge to the storage ponds and disposal areas. This compares to effluent values in 1999 (prior to the expansion of WWTP No. 2) where BOD results in effluent averaged 52 milligrams per liter (mg/L) (33 mg/L in 2009) and ranged from 36 to 75 mg/L in 1999 (27 to 41 mg/L in 2008) with only 3 of 12 months in 1999 having results less than the effluent limit of 40 mg/L for BOD. While BOD concentrations in effluent have exceeded the monthly average of 40 mg/L twice since January 2008, (once in February 2008 at 41 mg/L and once in May 2009 at 43 mg/L), both occurrences were reported to be the result of upsets to the treatment systems and the results show significant improvement when compared to previous results prior to the expansion of WWTP No. 2. The average annual discharge is now compliant with the secondary treatment effluent limits of the

WDR and is expected to comply with the effluent limits of the proposed Waste Discharge Requirements.

ISSUES

The CDO required the Discharger to complete expansion of WWTP No. 2; submit monthly progress reports; and comply with effluent limits following expansion. The Discharger completed all tasks identified in the CDO.

- The expansion of the WWTF was completed in September 2000 and an effluent storage expansion project was completed in 2004.

- The Discharger submitted the monthly progress reports as required until the expansion of WWTP No. 2 was completed.

- Effluent concentrations are now compliant with the existing effluent limits. BOD concentrations in effluent have averaged 34 milligrams per liter (mg/L) and have ranged from 25 to 43 mg/L since January 2008